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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/826,784 | 04/04/2001 | Jiin Lai | JCLA6095 | 4086 |

7590
J.C. Patents, Inc.
4 VENTURE
SUITE 250
Irvine, CA 92618

06/10/2004

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| EXAMINER |
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PHAN, RAYMOND NGAN

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| ART UNIT | PAPER NUMBER |
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2111

DATE MAILED: 06/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/826,784

Applicant(s)

LAI ET AL.

Examiner

Raymond Phan

Art Unit

2181

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 8-12 is/are allowed.
- 6) ☒ Claim(s) 1 and 13 is/are rejected.
- 7) ☒ Claim(s) 2-7 and 14-20 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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Part III DETAILED ACTION

Notice to Applicant(s)

1. This application has been examined. Claims 1-20 are pending.
2. The Group and/or Art Unit location of your application in the PTO has changed. To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to Group Art Unit 2181.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1 and 13 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Wu et al. (US No. 6,263,397) in view of Chen et al. (US No. 6,301,630).

In regard to claim 1, Wu et al. disclose the processing method of supporting message signaled interrupt to a chipset which is coupled to the PCI bus and system memory (see figure 2, col. 2, line 64 through col. 3, line 29) comprising the step of monitoring a memory write transaction on the PCI bus (see col. 6, lines 10-41).

But Wu et al. do not specifically disclose the step of performing an interrupt sequence when an address of the memory write transaction falls into a reserved interrupt address; wherein the reserved interrupt address is located in an address of the system memory. However Chen et al. disclose the step of performing an interrupt sequence when an address of the write transaction falls into an address

associated with selected buffer (see col. 14, lines 26-50). Therefore, it would have been obvious to a person of an ordinary skill in the art at the time the invention was made to have combined the teachings of Chen et al. within the system of Wu et al. because it would improve the interrupt response time and increase opportunities for combining or merging transaction in the buffer pool.

In regard to claim 13, Wu et al. disclose the processing method of supporting message signaled interrupt to a chipset which is coupled to the PCI bus and system memory (see figure 2, col. 2, line 64 through col. 3, line 29) comprising a DRAM controller coupled to the DRAM 130 (see col. 3, lines 19-30); CPU coupled to the chipset (see col. 3, lines 19-30). Wu et al. explicitly disclose the interrupt controller to generate the interrupt request signal to the CPU and enable the CPU to initiate the interrupt service routine (see col. 6, lines 11-41); interrupt delivery mechanism to monitor the memory write transaction on the (see col. 6, lines 10-41). But Wu et al. do not specifically disclose the step of performing an interrupt sequence when an address of the memory write transaction falls into a reserved interrupt address; wherein the reserved interrupt address is located in an address of the system memory. However Chen et al. disclose the step of performing an interrupt sequence when an address of the write transaction falls into an address associated with selected buffer (see col. 14, lines 26-50); message signal is generated to enable the interrupt controller to generate the interrupt request signal (see col. 14, line 50 through col. 15, line 65). Therefore, it would have been obvious to a person of an ordinary skill in the art at the time the invention was made to have combined the teachings of Chen et al. within the system of Wu et al. because it would improve the interrupt response time and increase opportunities for combining or merging transaction in the buffer pool.

Allowable Subject Matter

5. Claims 8-12 are allowable over the prior of records.
6. The following is an Examiner's statement of reasons for the indication of allowable subject matter: Claim 8-12 is allowable over the prior art of record because the Examiner found neither prior art cited in its entirety, nor based on the prior art, found any motivation to combine any of the said prior arts which teach a message signaled interrupt calculator, coupled to the message signal interrupt detector and the CPU interface to receive and count the message signaled interrupt acknowledging signal and to form an interrupt counting value, converting the interrupt counting value into a sent interrupt counting value, and outputting the sent interrupt counting value.

The remaining claims, not specifically mentioned, are allowed for same rationale from the parent claim by dependency

7. Claims 2-7, 14-20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
8. The following is an Examiner's statement of reasons for the indication of allowable subject matter: Claims 2-7 and 14-20 are allowable over the prior art of record because the Examiner found neither prior art cited in its entirety, nor based on the prior art, found any motivation to combine any of the said prior arts which teach the step of adding an interrupt counting value after the system specified message is written into the system memory and generating an interrupt request to the central processing unit according to the interrupt counting value (claim 2); a message signaled interrupt calculator, coupled to the message signaled interrupt

detector and the CPU to receive and count the message signaled interrupt acknowledging to form an interrupt counting value and to convert the interrupt counting value into a sent interrupt counting value, and to output the sent interrupt counting value according to the mother board interface; and a message signaled interrupt generator to generate the message interrupt request signal to the interrupt controller according to the interrupt counting value (claim 14).

The remaining claims, not specifically mentioned, are allowed for same rationale from the parent claim by dependency

Conclusion

9. Claims 1 and 13 are rejected. Claims 2-7 and 14-20 are objected. Claims 8-12 are allowed.

10. The prior arts made of record and not relied upon are considered pertinent to applicant's disclosure.

Jayakumar et al. (US No. 6,021,458) disclose a method and apparatus for handling multiple level/triggered and edge-triggered interrupts.

Waldron et al. (US No. 6,253,275) disclose an interrupt gating method for PCI bridges.

Chang et al. (US No. 5,835,779) disclose a message transmission among processing units using interrupt control technique.

Haren et al. (US No. 6,192,442) disclose an interrupt controller.

Seeman (US No. 5,881,253) discloses a computer system using posted memory write buffers in a bridge to implement system management mode.

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Tetrick (US No. 6,006,301) discloses a multi-delivery scheme interrupt router.

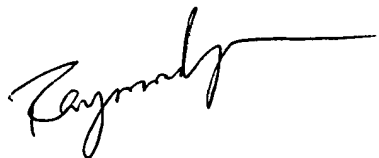
11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner Raymond Phan, whose telephone number is (703) 306-2756. The examiner can normally be reached on Monday-Friday from 6:30AM- 4:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's Primary, Paul Myers can be reached on (703) 305-9656 or via e-mail addressed to paul.myers@uspto.gov. The fax phone number for this Group is (703) 872-9306.

Communications via Internet e-mail regarding this application, other than those under 35 U.S.C. 132 or which otherwise require a signature, may be used by the applicant and should be addressed to [raymond.phan@uspto.gov].

All Internet e-mail communications will be made of record in the application file. PTO employees do not engage in Internet communications where there exists a possibility that sensitive information could be identified or exchanged unless the record includes a properly signed express waiver of the confidentiality requirements of 35 U.S.C. 122. This is more clearly set forth in the Interim Internet Usage Policy published in the Official Gazette of the Patent and Trademark on February 25, 1997 at 1195 OG 89.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-3900.

A handwritten signature in black ink, appearing to read 'Raymond', followed by a long horizontal flourish line.

Raymond Phan

11/19/03